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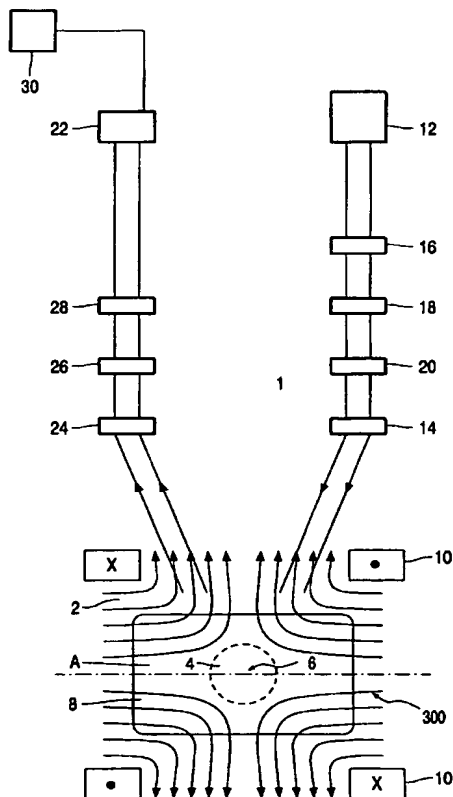
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[Continued on next page]

(54) Title: **ARRANGEMENT AND METHOD FOR THE SPATIALLY RESOLVED DETERMINATION OF STATE VARIABLES  
IN AN EXAMINATION AREA**



(57) Abstract: The present invention relates to a method for the spatially resolved determination of mechanical, physical, chemical and/or biological properties or state variables and/or the change in mechanical, physical, chemical and/or biological properties or state variables in an examination area of an examination object by means of the following steps: a) introducing magnetic particles into the examination area, b) generating a magnetic field with first part-area having a low magnetic field strength and a second part-area having a higher magnetic field strength, c) generating a superposed oscillating or rotating magnetic field in the first part-area, so that at least some of these magnetic particles oscillate or rotate, d) irradiating electromagnetic radiation into the examination area and e) detecting the reflected and/or scattered electromagnetic radiation and determining the intensity, absorption and/or polarization. The invention furthermore relates to a device for carrying out the method. The invention further relates to an optical contrast compositions and a magnetic particle composition having improved imaging properties.



GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/050443

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B5/00 A61B5/06 A61K49/18

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	EP 1 304 542 A (PHILIPS CORP INTELLECTUAL PTY ; KONINKL PHILIPS ELECTRONICS NV (NL)) 23 April 2003 (2003-04-23) paragraphs [0016] - [0018], [0020], [0029], [0034], [0058], [0060]	12-23
X	US 4 537 861 A (ELINGS VIRGIL B ET AL) 27 August 1985 (1985-08-27) column 6, line 9 - column 8, line 2 column 10, line 46 - column 11, line 22 column 15, line 8 - column 17, line 29	12-15, 17-23
A	US 5 794 622 A (CHOPP MICHEAL ET AL) 18 August 1998 (1998-08-18) column 1, line 45 - column 2, line 42	12
A	US 6 216 540 B1 (ZACH REUVEN D ET AL) 17 April 2001 (2001-04-17) abstract	12



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/050443

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-11, 35, 37  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-23

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-23

A method for the spatially resolved determination of properties or state variables and/or their change in an examination area comprising the step of and means for, respectively, generating magnetic fields, irradiating electromagnetic radiation and detecting reflected and/or scattered electromagnetic radiation.

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2. claims: 24-35

Optical contrast composition, process for its manufacture and its use, which composition comprises optical contrast particles having anisotropic optical properties and which particles comprise magnetic particles or a coating of a magnetic material.

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3. claims: 36-38

Magnetic particle composition having a particular magnetization curve, its use and optical contrast composition having such magnetic particles.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 1-11, 35, 37

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/050443

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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